

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appellant : Curt Thies
Serial No. : 10/769,210
Filed : January 30, 2004
Title : BEADING

Art Unit : 1713
Examiner : Kelechi C. Egwim
Conf. No. : 7576

Mail Stop Appeal Brief - Patents

Hon. Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

(i) *Real Party in Interest.*

Dr. Curt Thies

(ii) *Related Appeals and Interferences*

A first Notice of Appeal was mailed on April 18, 2006, and a first Appeal Brief filed on June 21, 2006.

(iii) *Status of Claims.*

Appealed claims 1, 2, 9 and 10 stand rejected under 35 U.S.C. §102(b) as anticipated by or in the alternative, under 35 U.S.C. §103(a) as being unpatentable over Jederstrom, and appealed claims 1 and 2 stand rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as being unpatentable over Cohen. Claims 3-8 and 11-14 are withdrawn. Claim 15 is cancelled.

(iv) *Status of Amendments.*

A response was filed on July 30, 2007 seeking reconsideration of rejection of claims 1, 2, 9 and 10 and action on claims 3-8 and 11-14 in the light of the Petition to Withdraw Requirement for Restriction that was filed on July 25, 2007.

(v) *Summary of Claimed Subject Matter.*

The invention comprises a polymer bead of dried bead structure incorporating a diluent that is highly water soluble characterized by swelling rapidly when placed in contact with aqueous media to form a water-swollen gel bead. Page 1, lines 7-14. The polymer beads may be a dry free-flow powder. Page 1, lines 16-17.

Agarose-dextrose beads may be made by the water-oil process. Page 5, line 23 - page 8, line 13, or the droplet extrusion method. Page 8, line 14- page 9, line 17.

(vi) *Grounds of Rejection to be Reviewed on Appeal*

1. Whether claims 1 and 2 are anticipated by Cohen.
2. Whether claims 1 and 2 are unpatentable over Cohen.
3. Whether claims 1, 2, 9 and 10 are anticipated by Jederstrom.
4. Whether claims 1, 2, 9 and 10 are unpatentable over Jederstrom.

(vii) *Argument*

- I. CLAIMS 1 AND 2 ARE NOT ANTICIPATED BY COHEN AT LEAST BECAUSE COHEN FAILS TO DISCLOSE DRY POLYMER BEADS THAT ARE WATER-SWELLABLE, LET ALONE HAVING RAPID WATER SWELLING PROPERTIES OR HIGHLY WATER- SOLUBLE DILUENTS.

The final action, p. 4, adopted the reasons advanced in the previous action of August 29, 2006, which states:

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, 35 U.S.C. 103(a) as being unpatentable over Cohen et al. (USPN 4,229,547) . . .

In the abstract and col. 6, lines 49-54, Cohen et al. teach dry polymer bead particles comprising highly water-soluble diluents such as polyoxyethylene alcohols.

. . .

While Cohen et al. or Jederström et al. may not expressly teach the disclosed "rapid swelling" properties of the claimed polymer beads, it is reasonable that the dry polymer beads Cohen et al. or Jederström et al. would possess the presently claimed properties since the composition of Cohen et al. or Jederström et al. are essentially the same as the claimed composition and the USPTO does not have at its disposal the tools or facilities deemed necessary to make physical determinations of the sort. In any event, an otherwise old composition is not patentable regardless of any new or unexpected properties. In re Fitzgerald et al., 619 F.2d 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112- § 2112.02.

Even if assuming that the prior art references do not meet the requirements of 35 U.S.C. 102, it would still have been obvious to one of ordinary skill in the art, at the time the invention was made, to arrive at the same inventive composition because the disclosure of the inventive subject matter appears within the generic disclosure of the prior art. Pp. 4-6.

This ground of rejection is unsound.

"It is well settled that anticipation under 35 U.S.C. 102 requires the presence in a single reference of all of the elements of a claimed invention." *Ex parte Chopra*, 229 U.S.P.Q. 230, 231 (BPA&I 1985) and cases cited.

"Anticipation requires the presence in a single prior art disclosure of all elements of a claimed invention arranged as in the claim." *Connell v. Sears, Roebuck & Co.*, 220 U.S.P.Q. 193, 198 (Fed. Cir. 1983).

"This court has repeatedly stated that the defense of lack of novelty (i.e., 'anticipation') can only be established by a single prior art reference which discloses each and every element of the claimed invention." *Structural Rubber Prod. Co. v. Park Rubber Co.*, 223 U.S.P.Q. 1264, 1270 (Fed. Cir. 1984), citing five prior Federal Circuit decisions since 1983 including *Connell*.

In a later analogous case the Court of Appeals for the Federal Circuit again applied this rule in reversing a denial of a motion for judgment n.o.v. after a jury finding that claims were anticipated. *Jamesbury Corp. v. Litton Industrial Prod., Inc.*, 225 U.S.P.Q. 253 (Fed. Cir. 1985).

After quoting from *Connell*, "Anticipation requires the presence in a single prior art disclosure of all elements of a claimed invention arranged as in the claim," 225 U.S.P.Q. at 256, the court observed that the patentee accomplished a constant tight contact in a ball valve by a lip on the seal or ring which interferes with the placement of the ball. The lip protruded into the area where the ball will be placed and was thus deflected after the ball was assembled into the valve. Because of this constant pressure, the patented valve was described as providing a particularly good seal when regulating a low pressure stream. The court quoted with approval from a 1967 Court of Claims decision adopting the opinion of then Commissioner and later Judge Donald E. Lane:

[T]he term "engaging the ball" recited in claims 7 and 8 means that the lip contacts the ball with sufficient force to provide a fluid tight seal. *** The Saunders flange or lip only sealingly engages the ball 1 on the upstream side

when the fluid pressure forces the lip against the ball and never sealingly engages the ball on the downstream side because there is no fluid pressure there to force the lip against the ball. The Saunders sealing ring provides a compression type of seal which depends upon the ball pressing into the material of the ring. *** The seal of Saunders depends primarily on the contact between the ball and the body of the sealing ring, and the flange or lip sealingly contacts the ball on the upstream side when the fluid pressure increases. 225 U.S.P.Q. at 258.

Relying on *Jamesbury*, the ITC said, "Anticipation requires looking at a reference, and comparing the disclosure of the reference with the claims of the patent in suit. A claimed device is anticipated if a single prior art reference discloses all the elements of the claimed invention as arranged in the claim." *In re Certain Floppy Disk Drives and Components Thereof*, 227 U.S.P.Q. 982, 985 (U.S. ITC 1985).

The portions of Cohen upon which the Examiner relies reads as follows:

This invention relates to a new and improved quiescent polymerization process which produces spherical beads of polymer having excellent porosity and unusually high bulk density. The process comprises polymerizing discrete droplets of liquid monomer containing a monomer-soluble free radical type catalyst while suspended in an aqueous mucilage having plastic flow properties and in the presence of a nonionic surfactant having the proper Hydrophile-Lipophile Balance (HLB), such as, for example, sorbitan monooleate. The porous bead polymers have the advantage of providing for lower cost bulk shipping, better extrusion feed, and for easy monomer stripping. Abstract

into discrete droplets in the aqueous mucilage. The nonionic surfactants useful for the purposes for the invention are those falling within the following generic classes and having an HLB in the broad range given above: (1) polyoxyethylene alkylphenols; (2) polyoxyethylene alcohols; (3) polyoxyethylene esters of fatty. Col. 6, lines 49-44.

The Examiner states that in the abstract and col. 6, lines 49-54, the reference teaches dry polymer bead particles comprising highly water-soluble diluents, such as polyoxyethylene alcohols, but those dry polymer beads (i.e., PVC) do not swell in water. That is, none of the beads in the reference are water-swellaable, so they cannot have rapid water swelling properties as called for by claims 1 and 2.

Furthermore, the molecules disclosed in the reference, such as polyoxyethylene alcohols, which the Examiner asserts are highly water-soluble diluent molecules, are well-

established nonionic surfactants. They are not diluents, but are added in small amounts to systems like those disclosed in the reference in order to form stabilized oil (monomer) droplets dispersed in an aqueous medium. Such molecules are specifically synthesized to do this. They spontaneously migrate to the oil/water interface of an oil-in-water emulsion such as disclosed in the reference, where they become adsorbed to form an interfacial film. This adsorbed layer stabilizes the oil phase (monomer) droplets dispersed in the continuous aqueous phase. In the reference the stabilized monomer droplets form the dispersed phase that is converted into solid beads by free radical polymerization. The reference discloses that the surfactants are added in small amounts to the disclosed systems in order to provide the vital function of stabilizing oil monomer droplets so that hydrophobic polymer beads incapable of swelling in water can be produced by free radical polymerization. These molecules are specifically synthesized so they gather at oil-water interfaces to provide stable monomer droplets. They are not diluents, let alone diluents that remain in the final dry beads when the bead production process is complete.

None of the compounds disclosed in this application as bead diluents are surfactants or have surfactant properties.

It is thus impossible to read claims 1 or 2 on the reference calling for polymer bead of dried bead structure incorporating a diluent that is highly water-soluble characterized by swelling rapidly when placed in contact with aqueous media to form a water-swollen gel bead

II. THE DIFFERENCES BETWEEN THE CLAIMED SUBJECT MATTER AND WHAT IS DISCLOSED IN COHEN ARE SUCH THAT THE SUBJECT MATTER AS A WHOLE, INCLUDING THE STRUCTURAL DIFFERENCES IDENTIFIED ABOVE, THE RESULTS AND THE FUNCTIONS OF THESE STRUCTURES ARE SUCH THAT THE SUBJECT MATTER AS A WHOLE WOULD NOT HAVE BEEN OBVIOUS TO A PERSON OF ORDINARY SKILL IN THE ART AT THE TIME THE INVENTION WAS MADE.

"The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification." *In re Gordon*, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984).

We have shown above how the reference fails to anticipate the subject matter of claims 1 and 2, and the functions and results of the structure disclosed in the reference are so different from that of the invention disclosed in this application and claimed in claims 1 and 2 that it can hardly be said that the subject matter as a whole would have been obvious to a person of ordinary skill in the art at the time the invention was made.

As the Supreme Court said in *KSR International Co. v. Teleflex Inc.*, 82 U.S.P.Q. 2d 1385, 1397 (U.S. 2007)

A factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning. See *Graham*, 383 U.S., at 36 (warning against a "temptation to read into the prior art the teachings of the invention in issue" and instructing courts to "'guard against slipping into the use of hindsight'"(quoting *Monroe Auto Equipment Co. v. Heckethorn Mfg. & Supply Co.*, 332 F. 2d 406, 412 [141 USPQ 549] (CA6 1964))).

Here, the Examiner relied upon hindsight to arrive at the determination of obviousness. It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious.¹⁵ This court has previously stated that "[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention."¹⁶ *In re Fritch*, 23 U.S.P.Q. 2d 1780, 1784 (Fed. Cir. 1992).

The final rejection is doing nothing more than attempting to reconstruct the prior art in the light of the invention claimed here through hindsight in direct violation of the warning stated in *KSR* .

¹⁵ *In re Gorman*, 933 F.2d 982, 987, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991). See also *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1138, 227 USPQ 543, 547 (Fed. Cir. 1985).

¹⁶ *In re Fine*, 837 F.2d at 1075, 5 USPQ2d at 1600.

III. CLAIMS 1, 2, 9 AND 10 ARE NOT ANTICIPATED BY JEDERSTROM AT LEAST BECAUSE THE REFERENCE FAILS TO DISCLOSE A DRY BEAD STRUCTURE INCORPORATING A DILUENT THAT IS HIGHLY WATER-SOLUBLE CHARACTERIZED BY SWELLING RAPIDLY WHEN PLACED IN CONTACT WITH AQUEOUS MEDIA TO FORM A WATER-SWOLLEN GEL BEAD AND ONLY DISCLOSES BEADS PRODUCED FREE OF WATER-SOLUBLE DILUENTS BY A CHEMICAL CROSS LINKING PROCESS.

The final action, P. 4, adopted the reasons advanced in the previous action of August 29, 2006, which states:

Claims 1, 2, 9 and 10 are rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, 35 U.S.C. § 103(a) as being unpatentable over Jederström et al. (USPN 4,997,867).

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In col. 1, lines 19-26, col. 2, lines 48-68 and col. 3, lines 26-42, Jederström et al. teach dry polysaccharide bead particles, such as cross-linked agarose comprising highly water-soluble diluents such as polyoxyethylene glycol.

While Cohen et al. or Jederström et al. may not expressly teach the disclosed "rapid swelling" properties of the claimed polymer beads, it is reasonable that the dry polymer beads Cohen et al. or Jederström et al. would possess the presently claimed properties since the composition of Cohen et al. or Jederström et al. are essentially the same as the claimed composition and the USPTO does not have at its disposal the tools or facilities deemed necessary to make physical determinations of the sort. In any event, an otherwise old composition is not patentable regardless of any new or unexpected properties. In re Fitzgerald et al., 619 F.2d 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112-§ 2112.02.

Even if assuming that the prior art references do not meet the requirements of 35 U.S.C. 102, it would still have been obvious to one of ordinary skill in the art, at the time the invention was made, to arrive at the same inventive composition because the disclosure of the inventive subject matter appears within the generic disclosure of the prior art. Pp. 4-6.

We rely on authorities set forth above.

The portions of Jederstrom upon which the Examiner relies read as follows:

Small dry water-absorbent beads of cross-linked dextran and similar cross-linked carbohydrates, such as cross-linked starch, cross-linked cellulose, cross-linked agarose, etc. have found extensive commercial use as excellent agents for topical treatment of discharging wounds, such as burn wounds, leg ulcers, bed wounds, etc. see e.g. GB Pat. No. 1,454,055, which is incorporated herein by reference. Col. 1, lines 19-26.

In another embodiment of the invention the thickening agent comprises said poly-lower alkylene glycol in combination with a high molecular, preferably two-dimensional synthetic polymer which is soluble or swellable in water (gel-forming) and is capable of forming a matrix with said beads together with said poly-lower alkylene glycol. Such synthetic polymers are preferably built-up from Polycarboxy vinyl chains, polycarboxymethylene chains, poly (ethylene oxide) chains, or chains of hydroxyl-lower alkyl, especially hydroxyethyl chains on cellulose polymers. Such polymers preferably have an average molecular weight of from about 400,000, up to about 6,000,000, or even higher. Examples of suitable polymers are i.a. poly (ethylene oxides) such as Polyox® Coagulant (also called PEG 115M) available from Union Carbide Corp., Danbury, CT., USA, Carbopol 910 (a carboxyvinyl polymer having an average molecular weight of about 500,000, available from B.F. Goodrich Chemical Co., Cleveland, Ohio, USA), Natrosol (a Cellulose-hydroxyethyl ether having an average molecular weight of about 1×10^6 or 2×10^5). Col. 2, line 48-68.

...

The water-absorbent particles used according to the invention are preferably small spherical beads of water-swellable cross-linked polysaccharides such as the particles described in the above-mentioned GB Pat. No. 1,454,055. Said beads preferably have a particle size distribution such that at least about 99% of the particles are within the range from about 50-500 microns (μm), especially from about 100-300 μm . The water-absorbent particles should be present in a concentration from 30 to 70% by weight of the total composition, preferably 40 to 60% by weight, especially 45 to 55% by weight. The particles are preferably chosen so that the finished stable composition will have a water-binding capacity of from 0.9 to 6.0, especially from 2.0 to 3.5 ml water per gram of the composition, as determined by the procedure to be described below with reference to FIG. 1. Col. 3, lines 26-42.

The reference does not teach dry polysaccharide bead particles, such as cross-linked agarose comprising highly water-soluble diluents such as polyoxyethylene glycol. Placing the beads disclosed in the reference (Col. 6, lines 37-49) in an aqueous solution of low molecular weight poly-lower alkylene glycol, such as poly (ethylene glycol) sugar

alcohols such as sorbitol or the like does not produce beads that correspond to the dry bead structure of claims 1, 2, 9 and 10 that, contain highly water-soluble diluents and characterized by swelling rapidly when placed in contact with aqueous media to form a water-swollen gel bead.

First consider that the reference discloses a low molecular weight poly-lower alkylene glycol, such as poly (ethylene glycol), sugar alcohols such as sorbitol, or the like, added to the disclosed system which is a hydrophilic softening or water retaining agent (Col. 3, lines 9-14) and discloses that these types of compounds are present in an aqueous medium into which the disclosed beads (Col. 6, lines 37-49) are placed and are initially free of water-soluble diluents. The disclosed beads are not polymer beads of dry bead structure incorporating a diluent that is highly water-soluble characterized by swelling rapidly when placed in contact with aqueous media to form a water-swollen gel bead. The compounds disclosed in the reference performed a totally different function in acting as a softening agent or water retention agent. In the invention of claims 1, 2, 9 and 10 the compounds do not act as a softening agent or water retention agent but are an integral part of the dry bead structure.

Second, the structure of the beads of claims 1, 2, 9 and 10 immersed in an aqueous medium become that of the gel component of the original dry beads which remains after the initially entrapped diluent escapes from the beads into the surrounding aqueous medium. The diluent present initially in the dry beads sets the internal gel structure, and this diluent is present throughout the bead preparation process. The compounds identified by the Examiner are present only in the aqueous solution in the reference, not in dry bead structure as disclosed and claimed in claims 1, 2, 9 and 10.

All of the beads disclosed in the reference are produced free of water-soluble diluents by a chemical cross linking process. This cross linking process fixes and therefore defines the internal structure of such beads. They are produced in the absence of highly soluble water diluents. When such beads are placed in an aqueous medium, and are no longer dry bead structure anything entering the beads that may have been dissolved in the aqueous medium is then in beads of wet structure, not dry bead structure.

In any event the reference fails to disclose the diffusion of anything into the beads, does not claim that this diffusion occurs and does not even mention the possibility of such diffusion occurring.

"A reference is only good for what it clearly and definitely discloses." *In re Hughes*, 145 U.S.P.Q. 467, 471 (C.C.P.A. 1965); *In re Moreton*, 129 U.S.P.Q. 227, 230 (C.C.P.A. 1961).

In summary diffusion of a diluent into a preformed water-swollen bead from a surrounding aqueous phase is a totally different situation from the case where diluent that is highly water soluble resides in dry bead structure characterized by swelling rapidly when placed in contact with aqueous media to form a water swollen gel bead as disclosed and claimed in this application. In contrast the structure of the chemically cross linked beads disclosed in the reference created in the absence of a water-soluble diluent cannot possibly meet the limitations of the claimed invention.

IV. THE DIFFERENCES BETWEEN THE INVENTION CLAIMED IN CLAIMS 1, 2, 9 AND 10 AND JEDERSTROM ARE SUCH THAT THE SUBJECT MATTER AS A WHOLE, EMBRACING NOT ONLY THE STRUCTURAL DIFFERENCES, BUT THE FUNCTION AND RESULTS ARE SUCH THAT THE SUBJECT MATTER AS A WHOLE WOULD NOT HAVE BEEN OBVIOUS TO A PERSON OF ORDINARY SKILL IN THE ART AT THE TIME THE INVENTION WAS MADE.

We have shown above how Jederstrom fails to anticipate the claimed invention. And nothing in Jederstrom remotely suggests or would make obvious to a person of ordinary skill in the art the formation of the structure disclosed and claimed in this application and characterized by completely different results and functions from what is disclosed in Jederstrom.

If these grounds of rejection were repeated, the Examiner was respectfully requested to quote verbatim the language in the references regarded as corresponding to each limitation in the rejected claims, and quote verbatim the language in each reference regarded as suggesting the desirability of modifying what is there disclosed to meet the limitation of each rejected claim. The Examiner did not and can not comply with this request.

The reliance on *In re Fitzgerald*, 205 U.S.P.Q. 594 (C.C.P.A. 1980) is inapposite. That case only held that the fastener in the rejected claims was only slightly different from the fastener

in the reference in sustaining the section 103 rejection. Here the claimed invention is significantly different in structure, function and result from what is disclosed in the prior art patents.

CONCLUSION

In view of the foregoing authorities, remarks and the inability of the prior art to anticipate, or make obvious the subject matter as a whole of the invention disclosed and claimed in this application, the decision of the Examiner finally rejecting claims should be reversed. Should the Board believe a claim on appeal may be amended to overcome a rejection, the Board is respectfully requested to include an explicit statement of how such a claim may be amended to overcome a rejection and afford appellant the right to amend in conformity therewith.

The brief fee was previously paid. Please apply any charges or credits to deposit account 06-1050 under Order No. 04015-005001.

Respectfully submitted,
FISH & RICHARDSON, P.C.

29 November 2007
Date: _____

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(vii) *Appendix of Claims*

(viii) *Claims Appendix*

1. Polymer bead of dry bead structure incorporating a diluent that is highly water-soluble characterized by swelling rapidly when placed in contact with aqueous media to form a water-swollen gel bead.
2. Polymer beads in accordance with claim 1 that are a dry-free-flow powder.
9. Agarose-Poly (ethylene glycol) beads made by the method of claim 3.
10. Agarose-Poly (ethylene glycol) beads made by the method of claim 4.

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(IX) Evidence Appendix.

None

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(X) Related Proceedings Appendix

None